Vol. 19, 1973

Chemotherapy

International Journal of
Experimental and Clinical Chemotherapy

Editor H. Schönfeld, Grenzach

Editorial Board
W. P. Boger, Wayne, Pa.
L. Dettli, Basel
A. Goldin, Bethesda, Md.
H. E. Kaufman, Gainesville, Fla.
P. Preziosi, Napoli
F. M. Schabel, jr., Birmingham, Ala.
A. de Weck, Bern

S. Karger · Basel · München · Paris · London · New York · Sydney

S. Karger · Basel · München · Paris · London · New York · Sydney
Arnold-Böcklin-Strasse 25, CH–4011 Basel (Switzerland)

All rights, including that of translation into other languages, reserved.
Photomechanic reproduction (photocopy, microcopy) of this volume or parts thereof without special permission of the publishers is prohibited.

© Copyright 1973 by S. Karger AG, Verlag für Medizin und Naturwissenschaften, Basel
Printed in Switzerland by Buchdruckerei National-Zeitung AG, Basel

Contents

No. 1

ANGEHRN, P. and THEN, R. (Basle): Investigations on the Mode of Action of the Combination Sulfamethoxazole/Trimethoprim 1

SALES, J. E. L.; SUTCLIFFE, MARION, and O'GRADY, F. (Uxbridge): Excretion of Clindamycin in the Bile of Patients with Biliary Tract Disease 11

RAMANATHAN, S.; FURUSAWA, E.; YEE, H., and CUTTING, W. C. (Honolulu): Propionin B, an Antiviral Principle of Propionibacteria 16

DOOLITTLE, C. H.; MANDEL, H. G., and HAHN, G. A. (Washington, D.C.): A Dissection of the Inhibitory Effects of 5-Fluorouracil in *Bacillus cereus* 22

MIYAKAWA, A.; PADARATHSINGH, M.; VADLAMUDI, S., and GOLDIN, A. (Bethesda, Md.): Effect of Combination Treatment with Adriamycin and Methotrexate on the Survival Time of Leukemic (L 1210) Mice 38

GÜTTNER, J.; ZSCHIESCHE, W., and WERNER, W. (Jena): Immunosuppressive Effects of Barbituric Acid Derivatives. I. Influence on Humoral Antibody Response and Phagocytic Activity in Mice 47

PEROMET, M.; SCHOUTENS, E., and YOURASSOWSKY, E. (Bruxelles): Clinical and Microbiological Study of Enduracidin in Infections Due to Methicillin-Resistant Strains of *Staphylococcus aureus* 53

Recent Antiviral Chemotherapy Publications 62

No. 2

Pharmacology

GUITI, N. and ABTAHI, F. (Tehran): Pharmacological Effects of Doxycycline on the Mammal's Intestine and Cardiovascular System 65

AL-KHAYYAT, A. A. and ARONSON, A. L. (Ithaca, N.Y.): Pharmacologic and Toxicologie Studies with the Polymyxins. I. A Gas Chromatographic Procedure for the Analysis of Colistin in Urine by Content of *D*-Leucine 75

AL-KHAYYAT, A. A. and ARONSON, A. L. (Ithaca, N.Y.): Pharmacologic and Toxicologic Studies with the Polymyxins. II. Comparative Pharmacologic Studies of the Sulfate and Methanesulfonate Salts of Polymyxin B and Colistin in Dogs . 82

AL-KHAYYAT, A. A. and ARONSON, A. L. (Ithaca, N.Y.): Pharmacologic and Toxicologic Studies with the Polymyxins. III. Considerations Regarding Clinical Use in Dogs 98

Microbiology

PULVERER, G. and JELJASZEWICZ, J. (Warsaw): Susceptibility of *Staphylococcus epidermidis* to Lysostaphin and Major Antimicrobial Agents 109

Clinical Report
NILSSON, L. B. (Västervik): Long-Term Treatment with Pivampicillin Chloride. A Clinical Toxicological Study 115

Book Reviews 121
Recent Antiviral Chemotherapy Publications 124

No. 3

Pharmacology
HOU, JOSEPH P. and POOLE, JOHN W. (Philadelphia, Pa.): Kinetics of β-Lactamase Inactivation of Penicillins. II. Effect of Competitive Inhibitors 129

Microbiology
ALBERGHINA, M.; NICOLETTI, G., and TORRISI, A. (Catania): Genetic Determinants of Aminoglycoside Resistance in Strains of Mycobacterium Tuberculosis . . . 148
EUDY, W. W. and BURROUS, S. E. (Norwich, N.Y.): Generation Times of *Proteus Mirabilis* and *Escherichia coli* in Experimental Infections 161

Experimental Chemotherapy
ÖBEK, A.; ANG, Ö.; PETORAK, I.; IPLIKÇI, A.; BÜGET, E.; EROGLU, L., and GÜNGÖR, M. (Istanbul): Effects of a New Sulfonamide Combination on Experimental Pyelonephritis 171

Clinical Report
HAVAS, L.; HAMZA, B.; FERNEX, M., and REHM, W. (Basle): Combination of Folic Acid and Folinic Acid Antagonists in Human and Veterinary Medicine 179

Book Review 196

No. 4

Pharmacology
CURCI, G.; CLAAR, E.; BERGAMINI, N.; NINNI, A.; CLAAR, G. M.; ASCIONE, A., and NITTI, V. (Naples): Studies on Blood Serum Levels on Rifampicin in Patients with Normal and Impaired Liver Function 197
NITTI, V.; NINNI, A.; MEOLA, G.; IULIANO, A., and CURCI, G. (Naples): Comparative Investigations of the Enzyme-Inducing Activity of Rifampicin and Barbiturates in Man 206
PEROMET, M.; SCHOUTENS, E., and YOURASSOWSKY, E. (Bruxelles): Endotracheal Administration of Gentamicin. Relationship Between Obtained Serum Levels and Creatininemia 211
SOLBERG, C. O.; SCHREINER, A.; HAMRE, E., and DIGRANES, A. (Bergen): Therapy of Infections with Parenteral Cephalexin 215

HANSEN, I.; LYKKEGAARD NIELSEN, M.; HEERFORDT, L.; HENRIKSEN, B., and BERTELSEN, S. (Copenhagen): Trimethoprim in Normal and Pathological Human Lung Tissue 221

Microbiology

KAPLAN, D. (Chicago, Ill.): Effect of Sodium Salicylate on the Antibacterial Activity of Glucose Oxidase 235

DAVIS, S. D. and IANNETTA, A. (Seattle, Wash.): Relative Antagonism *in vitro* of Calcium in Serum to the Bactericidal Activities of Gentamicin and Tobramycin on *Pseudomonas Aeruginosa* 243

Experimental Chemotherapy

KRAMER, M. J. and GRUNBERG, E. (Nuttley, N. J.): Effect of Ethidium Bromide against Transplantable Tumors in Mice and Rats 254

Book Review 259

Recent Antiviral Chemotherapy Publications 260

No. 5

Pharmacology

NAUTA, E. H.; MATTIE, H., and GOSLINGS, W. R. O. (Leiden): Pharmacokinetics of Cloxacillin in Patients on Chronic Intermittent Haemodialysis and in Healthy Subjects 261

VERHOEF, J.; OE, P. L., and SIMONIAN, S. (Amsterdam): The Clearance of Antibiotics by the Artificial Kidney 272

OE, P. L.; SIMONIAN, S., and VERHOEF, J. (Amsterdam): Pharmacokinetics of the New Penicillins. Amoxycillin and Flucloxacillin in Patients with Terminal Renal Failure Undergoing Haemodialysis 279

MÄNNISTÖ, P.; TUOMISTO, J.; SARIS, N. E., and LEHTINEN, T. (Helsinki): Pharmacokinetic Studies with Trimethoprim and Different Doses of Sulfadiazine in Healthy Human Subjects 289

Microbiology

MICHEL, J.; HAAS, H., and SACKS, T. G. (Jerusalem): *In vitro* Susceptibility of *Mycobacterium fortuitum, M. abscessus* and *M. borstelense* to Vancomycin . . 299

Experimental Chemotherapy

GÜTTNER, J.; HEINECKE, H.; KÜCHLER, W., and WERNER, W. (Jena): Immunosuppressive Effects of Barbituric Acid Derivatives. II. Effect of 1.3-Bis(piperidinomethyl)-5-Ethyl-5-Phenyl-Barbituric Acid on Humoral and Cell-Mediated Immunity in Mice 305

Clinical Report

KOCH, U. J.; SCHUMANN, K. P.; KÜCHLER, R., and KEWITZ, H. (Berlin): Efficacy of

Trimethoprim, Sulfamethoxazole and the Combination of Both in Acute Urinary Tract Infection. Clinical and Pharmacokinetical Studies 314
Recent Antiviral Chemotherapy Publications 322

No. 6

Microbiology

Sidwell, R. W.; Allen, L. B.; Huffman, J. H.; Khwaja, T. A.; Tolman, R. L., and Robins, R. K. (Irvine, Calif.): Anti-DNA Virus Activity of the 5'-Nucleotide and 3',5'-Cyclic Nucleotide of 9-β-D *Arabino*furanosyladenine 325
Abbate, G. F.; Leonessa, V., and Altucci, P. (Naples): Studies on L Forms of Bacteria. *In vitro* Induction and Propagation 341
Coward, J. E.; Carr, H. S., and Rosenkranz, H. S. (New York, N.Y.): Silver Sulfadiazine: Effect on the Growth and Ultrastructure of *Staphylococci* 348
Luboshitzky, R.; Sacks, T., and Michel, J. (Jerusalem): Bactericidal Effect of Combinations of Antibiotics on *Klebsiella-Enterobacter-Serratia* 354
Renzini, G.; Ravagnan, G., and Oliva, B. (Rome): The Microbiological Properties of a Dicloxacillin-Hetacillin Combination 367

Indexes

Subject Index 381
Author Index 379

Author Index

Abbate, G. F. 341
Abtahi, F. 65
Alberghina, M. 148
Al-Khayyat, A. A. 75, 82, 98
Allen, L. B. 325
Altucci, P. 341
Ang, Ö. 171
Angehrn, P. 1
Aronson, A. L. 75, 82, 98
Ascione, A. 197

Bergamini, N. 197
Bertelsen, S. 221
Büget, E. 171
Burrous, S. E. 161

Carr, H. S. 348
Claar, E. 197
Claar, G. M. 197
Coward, J. E. 348
Curci, G. 197, 206
Cutting, W. C. 16

Davis, S. D. 243
Digranes, A. 215
Doolittle, C. H. 22

Eroglu, L. 171
Eudy, W. W. 161

Fernex, M. 179
Furusawa, E. 16

Goldin, A. 38
Goslings, W. R. O. 261
Grunberg, E. 254
Güngör, M. 171
Güttner, J. 47, 305
Guiti, N. 65

Haas, H. 299
Hahn, G. A. 22
Hamre, E. 215
Hamza, B. 179
Hansen, I. 221
Havas, L. 179
Heerfordt, L. 221
Heinecke, H. 305
Henriksen, B. 221
Hou, J. P. 129
Huffman, J. H. 325

Iannetta, A. 243
Iplikçi, A. 171
Iuliano, A. 206

Jeljaszewicz, J. 109

Kaplan, D. 235
Kewitz, H. 314
Khwaja, T. A. 325
Koch, U. J. 314
Kramer, M. J. 243
Küchler, R. 314
Küchler, W. 305

Lehtinen, T. 289
Leonessa, V. 341
Luboshitzki, R. 354
Lykkegaard Nielsen, M. 221

Männistö, P. 289
Mandel, H. G. 22
Mattie, H. 261
Meola, G. 206
Michel, J. 299, 354
Miyakawa, A. 38

Nauta, E. H. 261
Nicoletti, G. 148
Nilsson, L. B. 115
Ninni, A. 197, 206

Nitti, V. 197, 206

Öbek, A. 171
Oe, P. L. 272, 279
O'Grady, F. 11
Oliva, B. 367

Padarathsingh, M. 38
Peromet, M. 53, 211
Petorak, I. 171
Poole, J. W. 129
Pulverer, G. 109

Ramanathan, S. 16
Ravagnan, G. 367
Rehm, W. 179
Renzini, G. 367
Robins, R. K. 325
Rosenkranz, H. S. 348

Sacks, T. G. 299, 354
Sales, J. E. L. 11
Saris, N. E. 289
Schoutens, E. 53, 211
Schreiner, A. 215
Schumann, K. P. 314
Sidwell, R. W. 325
Simonian, S. 272, 279
Solberg, C. O. 215
Sutcliffe, M. 11

Then, R. 1
Tolman, R. L. 325
Torrisi, A. 148
Tuomisto, J. 289

Vadlamudi, S. 38
Verhoef, J. 272, 279

Werner, W. 47, 305

Yee, H. 16
Yourassowsky, E. 53, 211

Zschiesche, W. 47

Subject Index

Acridine bases 148
Adenine arabinoside 325
Adenine arabinotide 325
Adenine cyclic arabinotide 325
Adenocarcinoma EO-771 254
Adriamycin 38
Aerobacter 15
Aminoglycoside antibiotics 148
Amoxycillin 273, 279
Ampicillin 356
–, penicilloic acid 133
Ancillin 129
Antibiotics, clearance by artificial kidney 272
Antibiotic combinations 354, 367
Antibody response 47

Bacillus cereus 22, 129
Bacillus megaterium 34
Bacterial L forms 341
Bacteroides fragilis 15
Barbiturates 305
Barbituric acid derivatives, immunosuppressive effects 47, 305

Calcium, antagonism antibiotics 243
Carbenicillin 243, 356
Casamino acids 3
Cellular proliferation 23
Cephaloridine 356
Cephalosporins 129
–, pharmacokinetics 215
Cephalothin 273
Chloramphenicol 356
Clindamycin 11
–, concentration bile 12
Cloxacillin 129, 261
–, pharmacokinetics 261
Coccidiosis 179
Colistin 356
–, concentration urine 75
–, sulfate 75
Columbia SK virus 16
Combination adriamycin methotrexate 38
–, sulfamethoxazole/trimethoprim 1
Cyclophosphamide 306

Daunomycin 39
Diaminopyrimidine derivates 179
Dicloxacillin 129, 367
Dihidrostreptomycin sulfate 149
Diplococcus pneumoniae 215
DNA synthesis 22
Doxycycline, calcium binding 65
–, pharmacological effects 65

Ehrlich solid carcinoma 254
EMC virus 16
Endotracheal administration 211
Enduracidin 53
Enterobacter 343, 348, 354
Enterococcus 15, 171
Enzyme induction 206
Erythromycin lactobionate 273
Escherichia 34, 130
Escherichia coli 2, 8, 15, 235, 343, 348, 371
–, generation time 161
Ethidium bromide 148, 254
5-Ethyl-5-phenyl-barbituric acid 47

Feulgen stain 25
Flexner-Jobling carcinoma 254
Flucloxacillin 273, 279
5-Fluorouracil, inhibitory effects 22

Gentamicin 243, 273, 356
–, pharmacokinetics 211
Glucose oxidase, sodium salicylate 235
Gram stain 25

Haemodialysis 261, 272, 279
Halothane 47
Herpes encephalitis 325
– virus 325
Herpetic keratitis 325
Hetacillin 367

Inosine 2, 4,

Kanamycin 149, 273, 356
Klebsiella 15, 343, 354
Klebsiella pneumoniae 371

L forms, induction 341
D-Leucine 75
Leukemia L-1210 254

Lincomycin 12
Lysostaphin 109

Malaria 179
Methicillin 53, 129, 342
Methotrexate 38
Micrococcus 109
Mycobacteria 148, 299

Nafcillin 129
Nalidixic acid 356
Neomycin sulfate 149

Oxacillin 129

PABA 1, 7
Penicillin 342
Penicillinase 129
Penicillins, β-lactamase inactivation 129
–, pharmacokinetics 279
Phagocytosis 47
Phenobarbitone 207
Phenothiazine derivatives 47
Pivampicillin, toxicity 115
Polymyxins 75
–, binding to plasma proteins 82
–, pharmacokinetics 82
–, toxicity 98
Propionibacteria 16
Propionin B 16
Protein binding 272
Proteus 15, 130
Proteus mirabilis 341, 372
–, generation time 161
Proteus rettgeri 372
– *vulgaris* 372
Pseudomonas 82, 343
Pseudomonas aeruginosa 15, 243, 348
– *pyocyanea* 130

Quinacillin 129

Renal insufficiency 211, 261
Reserpine 47
Rifampicin 356
–, barbiturates 206
–, pharmacokinetics 197

Salmonella 15
– carriers, chronic 12
Salmonella paratyphi 371
– *typhi* 371
Sarcoma 180 254
Sephadex 17
Serratia 354
Serum albumin, effect on penicillinase 138
Shigella dysenteriae 371
– *flexneri* 343, 371
Silver sulfadiazine 348
Sodium diphenyl-hydantoine 47
Staphylococcus 109, 235
Staphylococcus aureus 15, 53, 129, 171, 215, 341, 348, 369
Streptococcus faecalis 15, 171
Streptomyces orientalis 299
– *peucetius* 38
Streptomycin 356
Sulfadiazine 289
Sulfamethizole-sulfaethidole 171
Sulfamethoxazole 1
–, combination trimethoprim 179, 289, 314
Sulfonamide potentiators 179
Sulfonamides 1, 179
Surface polysaccharides 235

Tetracycline 356
Tetrahydrofolate 1
Thymidine 2, 4, 22
Thymine 1–2, 6
Thymineless death 5
Tobramycin 243
Tracheotomy 211
Trimethoprim 1, 289
–, combination sulfamethoxazole 289, 314
–, – sulfonamides 179, 289, 314
–, pharmacokinetics 215, 289
Triphenylmethylenpenicillin 129

Vaccina virus 325
Vancomycin 299
Viable cell count 5
Viable cells 24
Viomycin sulfate 149

Book reviews 121, 196
Recent antiviral chemotherapy publications 62, 125, 259, 322